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ABSTRACT

The speech of three girls aged 17 to 19 months was recorded in three at-home sessions. Patterns of single-word and multiple-word utterances were different for each of the three girls. This difference seems to support the notion that the most interaction-oriented child has, at least in terms of the word classes upon which she bases her combinations, the least sophisticated language, while the most object-oriented child has, at least in the terms employed by researchers, a very much higher degree of sophistication. (JB)

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Different Routes to Multiple-word Combinations?

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Introduction

Despite the fact that the study of language acquisition has moved away from a purely syntactic approach to how children learn to talk, there is still a tendency to concentrate on commonalities in children's early speech rather than to explore, in a systematic way, how children differ in their approaches to first language learning. The identification of the processes involved in the generation of individual differences is critical to any theory of psychological functioning since the level of generality of such a theory is conditioned by the existence or otherwise of individual differences in aspects of psychological functioning relevant to the theoretical domain. This argument applies to the study of language acquisition as much as to any other area of behaviour. It is, of course, almost certainly the case that there are universals of cognitive development and perhaps too in the development of communicative skills as well as linguistic universals. However, a theory of how language is acquired must have something to say about how such universals interact with specific aspects of input to the child and her/his own cognitive capacity, to generate the kinds of differences in early language development that are reported in the literature and found in the present study. It will be argued that the children in this study show consistent individual differences in their use of single-word utterances which are carried over to their early use of multiple-word utterances and which have consequences for the ways in which they structure these utterances.

The study

TABLE 1: SUMMARY DATA FOR SESSIONS

	BETH			JANE			KATE		
Session	Age*	MLU**	N***	Age	MLU	N	Age	MLU	N
I	19,1	1.19	41	17,2	1.45	38	18,2	1.06	68
II	20,0	1.14	72	18,1	1.45	72	19,1	1.09	70
III	22,1	1.25	163	21,3	1.69	84	20,3	1.22	195
IV	24,0	1.26	163	25,2	1.73	114	22,3	1.55	201
V	25,1	1.75	170	27,0	1.62	233	24,3	1.89	264
VI	26,1	2.51	344	29,3	2.23	192	25,2	2.48	178

*in months and weeks ** in morphemes *** non-repeated utterances

The study, which is of three girls, Beth, Jane and Kate, started when the children were between 17 and 19 months. Recording sessions took place about once a fortnight in the child's home with the mother and the investigator present. Sessions were audio-recorded and the investigator took contextual notes. Each session lasted approximately 45 minutes and the investigator acted as a participant observer. The data analysed for this paper are drawn from six sessions with each child. Table 1 gives the basic data for each session. It should be noted that sessions are not matched for age or MLU. (Fuller details of method are given in Lieven (1978b, 1980).

Single-word utterances

In her 1973 study, Nelson tentatively identified two kinds of early language learners who she called 'referential' and 'expressive'. 'Referential' children were said to be more 'object-oriented' while 'expressive' children were more interested in using language for 'personal-social' ends. The present study is not strictly comparable with that of Nelson - for example, her data involved the classification, using mothers' diaries, of only the first 50 items of vocabulary learnt. However, the categories used ('specific, nominal, 'general nominal', 'action', 'modifier', 'function', 'personal-social', and 'non-classifiable') do closely resemble those of Nelson with two exceptions. The 'action' category was defined more narrowly to include only those words which named an action (eg fall, bump) or regularly accompanied an action (eg up, down), and also, a category of 'non-classifiables' was introduced for ambiguous utterances (eg there which was often used in such a way as to be ambiguous as between a prolocative or an existential marker). Detailed definitions of the categories may be found in Lieven (1980). The important point for the present study is that there is no commitment to the idea that these categories are psychologically real for the child.

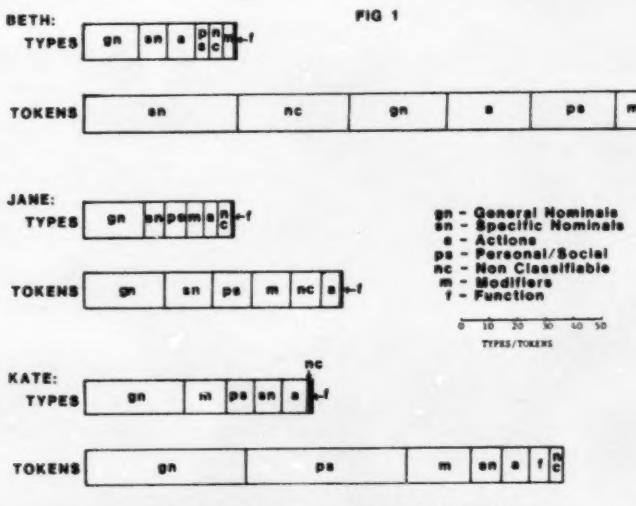

FIG 1: MEAN NUMBER OF TYPES AND TOKENS IN WORD CLASSES FOR SESSIONS I-V

In order to get a sense of what the children are doing in their early speech we need a picture of both their underlying vocabulary range (of which the number of types in their speech is some reflection) and of how they actually use this range (which is reflected in their tokens).

Fig.1 shows the numbers of types and tokens in each category after the numbers have been prorated for length of session and averaged across sessions I-V. Session VI has been excluded from the analysis because, by then, the children's use of single word utterances more nearly approached that of adults, ie. monosyllabic answers

to questions, greetings. If we look first at the histograms for types in Fig.1, we can see that 'general nominals' form the largest single category for all three children. Although Kate has a greater absolute number of types and, too, a greater absolute number of 'general nominals', 'general nominals' do not form a very much larger proportion of her types than they do for the other two children (44% for Kate; 39.6% for Jane; 36.2% for Beth). However Kate also has a considerably larger number of 'modifiers' both absolutely and proportionately (19.5% for Kate; 12.4% for Jane; 6.3% for Beth)and this might lead us tentatively to think of her as the most 'object-oriented' of the three children since, with the exception of possessives and more, words in this category tended to be descriptive adjectives, eg. hot, pretty, big which seemed to be applied to objects. More substantial differences between the children start to show if we look at the figures for tokens - that is, for usage rather than for underlying range.

For Beth's utterances the numbers of tokens in the categories of 'specific nominal', 'non-classifiable' and 'action' is very high compared to either the number of types in her own corpus or to the number of tokens in these categories for the other two children. Thus Beth is using a small number of words very frequently within sessions. These words are: Mummy ('specific nominal'); Julian (Beth's brother, 'specific nominal'); there ('non-classifiable'); look ('action') and more ('modifier'). Basically, Beth was occupied with getting attention from those around her rather than with talking about specific objects or actions and she used the words mentioned to this end. In this sense she could perhaps be described as a child more interested in social relations than in objects - ie. as an 'expressive' child in Nelson's terms. However, this is not evidenced by the relatively greater prominence of 'personal-social' words in either her types or her tokens but in the way that she uses her somewhat limited vocabulary. This would not have emerged from Nelson's analysis.

By contrast, 'general nominals' form a substantial proportion of both Kate's and Jane's tokens and both, too, use a relatively substantial number of 'modifiers' in their speech. We might, then, wish to think of these children as more like Nelson's 'referential' children than is Beth. However, the problem with this is that the 'personal-social' category (upon which Nelson's centrally bases her definition of 'expressive' children) depends critically on interaction, and Kate has almost as many of these tokens as she does 'general nominals'. This reflects the greater level of interaction between Kate and her mother as compared with the other two dyads, as well as Kate's ability or inclination to answer her mother's questions appropriately with yes or no. Both these words are classed as 'personal-social' as are hello and byebye.

There is some support from these data for the idea that these children may be characterised as being more interested in either talking about objects' or in using language for social ends, in the early stages of language acquisition. However it seems that this

is not reflected so much in the distribution of the relative proportions of different kinds of words in the children's underlying vocabulary but rather in which items of vocabulary they use in their actual speech. Furthermore these differences appear to exert an important influence on the content and, perhaps, the structure, of the children's early multiple-word combinations.

Multiple-word combinations

Multiple-word combinations were initially classfied into categories that are in rough accordance with those of Bloom et al.(1974) with the exception that utterances expressing 'locative action' were classified in the 'action' category. Full definitions

TABLE 2: MULTIPLE WORD COMBINATIONS: DISTRIBUTION AND FORMULAE

	BETH				JANE				KATE			
	Percentage*		Structure	Semantics	Percentage*		Structure	Semantics	Percentage*		Structure	Semantics
Demonstrative/ Existence	19	33	There + X (+ 3 other related formulae)	Non-specific reference	16	33	There + X	Specific Reference	4	8		Negation
Locative State	19	18	X + There X + On there There X there	Non-specific	3	3	X + There	Specific Reference	1	4		
Action	12	3	Groping. Using GPF in Dem/Exist (eg.There(a) a roll the barrel)		29	15	X + on/off (Poss.Assoc)	Specific	13	40	Object + Preposition (?Poss.Assoc)	Specific-sophisticated
							Make + X (Poss.Prod*)	Specific-sophisticated			Action + it (Poss.Prod)	Specific
							My + Action (Poss.Prod*)	Specific-sophisticated			Agent + Action (Poss.Prod)	Specific-sophisticated
State	5	5	Me/I want + X (?Poss.Prod)	Specific	19	5	Want + X (?Poss.Prod)	Specific	19	12	hurt + X	Specific
											have + X	Specific
							I/we got X (?Poss.Prod)	Specific			Person + State	Specific-sophisticated
Attribution	-	1			7	10	X + one/noun (?Poss.Assoc.)		17	10	Attribute + Noun (?Poss.Assoc)	
Possession	2	14	My/mine + X There my X	Non-specific	21	10	My + X (Poss.Prod.)	Specific	13	11	My + X (?Poss.Prod)	Specific
											X + Y (Poss.Prod)	Specific-sophisticated
Recurrence	27	17	More X/one (Poss.Assoc.) + 3 related to GPF of Dem/Exist. (eg.There(a) (a) more)	Non-specific	4	12	More + X (Poss.Prod)	Specific	-	2		
N	91	263			90	137			99	118		
Session	IV	V/I			IV	V/I			IV	V/I		

*Less than 14% of multiple-word combinations fall exclusively into categories not included in this analysis (eg 'notice','social').

may be found in Lieven (1980). This classification was made in order to get some general idea of what the children were talking about rather than with the aim of imputing such categorisations to the linguistic competence of the children. Indeed I am in full accord with Braine (1976) who argues that such categorisations are often pitched at far too great a level of abstractness to capture the 'categories' that children are actually using in their earliest word combinations. Table 2 shows the percentage of utterances falling into the different categories (for sessions V and VI).

Content

If we start by comparing Beth and Kate, we see that, with the exception of the category of 'possession' they differ markedly on the relative proportions of utterances falling into the categories.

Thus the categories of 'demonstrative/existence', 'locative state' and 'recurrence' are highest for Beth, while the categories of 'attribution', 'state' and 'action' are highest for Kate. Beth's multiple-word combinations depend critically on the words that she used so frequently in her single-word utterances: Mummy, Julian, there, look, more. Although these were sometimes combined with nouns, as in There book or Julian bike, Beth produced large numbers of utterances that appeared to have no specific reference and which contained some or all of the above words in varying combination. Examples are: There Julian; There(s) a more one, there(s) a more; Julian there Mummy; There some more there etc. Utterances like these appeared to be used by Beth for general attentional and conversational purposes rather than with any specific referential intent and they were correspondingly hard to interpret (and to respond to, see Lieven 1978b).

Kate's multiple-word combinations can also be seen as deriving from her single-word speech in that so many of them fell into the categories of 'attribution' and 'action'. Here it is not so much a continuity of actual words used but that Kate is using her utterances to talk about the attributes and actions of people and things. This would seem to follow on directly from having a relatively large proportion of 'modifiers' and 'general nominals' in her single-word usage.

Jane is more like Kate than like Beth but it is interesting to note that she too has a substantial proportion of utterances in the 'demonstrative/existence' category and she too had a greater number of 'non-classifiables' in her single-word tokens than did Kate. However Jane's 'demonstrative/existence' utterances were considerably more specific and thus interpretable than were Beth's. This is an indication of the fact that the differences between these children lie in not only what they talk about but the ways in which they do it. Thus for each of the children, there are several important respects in which their early multiple word combinations are derived from their single-word speech.

Structure

It is impossible to do more, in a paper of this length, than to roughly summarise the findings on the patterns of the children's early multiple-word combinations. Table 2 provides such a summary. The utterances were analysed following the technique outlined by Braine (1976). Braine's method of analysing early word combinations has the advantage of being considerably more 'data-driven' and therefore psychologically realistic than do other systems of 'semantic-syntactic' categories which, by implication, impute categories to the child which are almost certainly too abstract and general in scope. Definitions for the terms 'positionally productive', 'positionally associative' and 'groping' may be found in Braine (op. cit. p.9). Corpus sizes are approximately similar to those used by Braine but do not remotely reach the sort of size that MacWhinney (1980) claims is necessary for identifying productivity. Statements

about the productivity or level of abstractness of the formulae identified in the present study are, therefore, highly tentative.

Inspection of Table 2 indicates that many of the formulae that the children are using are of the lexically based 'constant + variable' type. This is not confined to categories that have been called 'operations of reference' (Brown 1976) or 'functional relations' (Bloom et al. 1975). There are lexically based formulae in nearly all categories for all three children, though we cannot be sure whether, in Braine's terms, these are productive or merely associative. However there are also marked differences between the children in the degrees of specificity and of abstract categorisation that they are achieving in their utterances.

As already noted, a very large proportion of Beth's utterances involve the use of there and one way of characterising her utterances would be to argue that she has some sort of 'general purpose formula' (GPF in Table 2) which she is using to generate a large proportion of her utterances. The formula is There + X and there are a number of other formulae which are related to it, eg. There X there and There(s) (a) X. In the X position Beth will put almost any other word or phrase as we have seen in the examples above. Thus it seems that there is no evidence that Beth clearly distinguishes the various words and phrases that are in the X position and therefore that a division of her utterances into 'action', 'possessive' etc. has little meaning except to indicate that her vocabulary contains certain kinds of words.

Jane has a much larger range than Beth of 'constant + variable' formulae. Even where the formulae are similar, eg. There + X, Jane's utterances can be distinguished from those or Beth because the items in the X position form a much more limited set (basically of nouns) and the utterances refer to objects in the immediate environment. However Jane has only one formula which is not formed by using a constant lexical item, that is 'attribute + noun'. This contrasts strongly with Kate. Kate does have some lexically based 'constant + variable' formulae (eg. 'action + it'; 'my + X') but she also seems to have some formulae which involve the positionally consistent combination of somewhat more general word classes. Thus both terms in the formula vary. Examples are the formulae 'attribute + noun' and 'agent + action'. There is, of course, no implication here that either Jane or Kate are actually using word classes of as broad scope as 'attribute', 'action' or 'noun', merely that there is some semantic systematicity in the words that go in these positions. However, in Kate's case, she does appear to be combining words on the basis of rules that go beyond that of the combination of a specific lexical item with a more or less (from the point of view of adult grammar) 'correct' word class.

Discussion and Conclusions

We have seen that these three children vary, at approximately the same MLUs, in their single-word vocabulary usage and that this appears to be closely related to the sorts of things that they can or do talk about when they start to produce multiple-word combin-

ations. It is, in many ways, hardly surprising that the words most frequently represented in a child's single-word vocabulary should form the basis of the earliest multiple-word combinations. Perhaps the fact that this basic attribute of early language development has been somewhat overlooked is due to the tendency of researchers to use categories to search for generalities - in the process, some of the really rather basic features which differentiate children may slip through.

There have been a few studies which have looked at continuity in individual differences between the 'one-word stage' and the beginnings of multiple-word combination. Nelson's own study is one and she found some differences between her 'referential' and 'expressive' groups of children in the extent to which they used nouns or pronouns in their earliest word combinations. However the present study found little evidence of such a difference per se perhaps because each child had at least one lexically based pattern involving a pronoun. Bloom et al. (1975) also found differences in pronominal/nominal ratios and remark on differences between children in the degree to which their utterances reflect what these authors call 'functional relations' as opposed to 'grammatical relations'. The present study indicates that such a distinction may not be so clear-cut.

However, in the most general sense, the distinction made by Nelson between 'object-oriented' and 'interaction-oriented' children does appear to capture something about individual differences in early language development. Certainly whatever it is that distinguishes the children in this study at the point at which they are producing single-word utterances continues to differentiate them in their earliest multiple-word combinations. One issue is whether such different 'orientations' have consequences not only for what the children talk about but also for the degree of 'sophistication' with which they structure their utterances.

Briefly, Beth, the most 'interaction-oriented' child has, at least in terms of the word classes upon which she bases her combinations, the least sophisticated speech, while Kate, the most 'object-oriented' child has, at least in the terms employed by child language researchers, a very much higher degree of sophistication. It is important to remember, in the context of this observation, that Beth and Kate have similar MLUs in all sessions and that the upper bounds of Beth's corpora are, if anything, greater than those of Kate. Something seems to be pushing Beth into producing multiple-word utterances at much the same rate and age as Kate and this does not appear to be the degree of specificity or even interactional effect that she can achieve with such utterances. Further, the terms 'object-oriented' and 'interaction-oriented' are only reflecting part of what is happening since even the most 'interaction-oriented' children have quite a high proportion of 'general nominals' in their speech while 'object-oriented' children may, as we have seen in Kate's case, be centrally involved in interpersonal language. Presumably the differences between these children are a reflection

of some more basic affective-cognitive differences which not only condition the early acquisition of vocabulary but have consequences for language processing strategies which in turn generate wide differences in early combinations. A sample of three is hardly the place to go much further, though some remarks on the direction of effect of relations between the children's speech and that of their mothers' to them may be found in Lieven (1978a, 1978b).

The study of language acquisition cross-linguistically has started to yield extremely fruitful results on the interaction between cognitive and linguistic factors in the acquisition of language (Slobin 1980). In principle, and for similar reasons, the study of individual differences within a language should also bear on such issues. However, we are a very long way from the in-depth characterisation of theoretically interesting individual differences in language acquisition which are the pre-requisite for such an endeavour.

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